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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,715	01/25/2002	Thomas M. Aune	O119.12-0013	3167
164	7590	09/12/2003	7	
KINNEY & LANGE, P.A. THE KINNEY & LANGE BUILDING 312 SOUTH THIRD STREET MINNEAPOLIS, MN 55415-1002			EXAMINER	
				OCAMPO, MARIANNE S
		ART UNIT	PAPER NUMBER	
		1723		

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/056,715	AUNE ET AL.
	Examiner	Art Unit
	Marianne S. Ocampo	1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 26 June 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the filter cartridge having a cylindrical core member, as claimed in claim 1, must be shown or the feature should be canceled from the claim. **No new matter should be entered.**

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 6 and 9 – 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pall(US 3,933,557).

6. With regards to claims 1 and 4, Pall (557) discloses a non-woven filter cartridge comprising:

- a cylindrical core member (inserted internal support or core 24 or a perforated core/mandrel 51, as in col. 12, lines 12 – 14 & lines 60 – 68 and col. 13, and fig. 7);
- a first cylindrical mass (i.e. first set of filaments or fine fibers laid down first, see col. 7, lines 44 - 46) of essentially continuous, intertwined, and thermally bonded polymer filaments adjacent to the core member (24), wherein the polymer filaments of the first

mass having diameters of below 10  $\mu$  (10 microns) and preferably below 5  $\mu$

(5 microns) down to 0.1  $\mu$  (1 micron) or less, as in col. 7, lines 39 – 41, and

- a second cylindrical mass (second set of filaments of different diameter or coarse fibers laid down on the exterior portion of the formed cylinder of fine fibers, see col. 7, lines 44 – 50) of essentially continuous, intertwined, and thermally bonded polymer filaments adjacent to the first mass of polymer filaments, the polymer filaments of the second mass having diameters greater than about 1.5 microns, in particular having diameters of 10  $\mu$  (10 microns) to 50 microns or 100  $\mu$  (100 microns) or higher, as in col. 7, lines 37 – 39.

. See also cols. 3 - 13 of the specification.

5. Pall (557) has disclosed all the structural limitations (see above) of the invention claimed as claimed in claims 1 & 4 (i.e. non-woven filter cartridge) except for the properties/functions of the non-woven filter cartridge of *having an efficiency in removing 1 micron particles being greater than or equal to 99.9% and a pressure drop across the cartridge being less than 3 pounds per square inch for every gallon per minute of flow through a 10 inch long section of the cartridge (as in claim 1), and a pressure drop across the filter cartridge being about 1.5 pounds per square inch for every gallon per minute of flow through a 10 inch long section of the cartridge (as in claim 4)* . The examiner cannot determine whether or not the reference inherently possesses the properties which anticipates or renders obvious these properties or functions of the claimed invention, and has basis for shifting the burden of proof to applicants as

in In re Fitzgerald, 619 F. 2d 67, 205 USPQ 594 (CCPA 1980). See M.P.E.P. §§ 2112 – 2112.02.

6. Concerning claim 2, Pall (557) has taught all the limitations of claim 1 above, and Pall further discloses the filaments of the first mass (i.e. those of the fine fibers) having diameters less than about 1 micron, in particular, those below  $5 \mu$  (5 microns) down to  $0.1 \mu$  (0.1 micron) or less, as in col. 7, lines 39 - 41.

7. Regarding claim 3, Pall (557) has taught all the limitations of claim 1 above, and Pall further discloses the filaments of the second mass (those of coarse fibers) having diameters (*coarse fibers having diameters of 10 microns*) which are included in the claimed range of about 4 microns to about 10 microns, as in col. 7, line 38.

8. With regards claim 5, Pall (557) has taught all the limitations of claim 1 above, and Pall further discloses the first mass of polymer filaments comprises a first filament zone and a second filament zone, the first filament zone (these are formed by fine fibers laid down first on the rotating mandrel at point/portion 16 from orifices at 7 which has a higher density, as in cols. 11 – 12 and fig. 1) defining a *calendered* layer having a density of filaments which is substantially greater than that of the second filament zone (fine fibers laid down on the rotating mandrel subsequent/after the fibers from orifices at 7 are already laid down as the mandrel

rotates and pushes off the forming mass axially down its length towards the end where the mass is cut to predetermined lengths in fig. 1), as in cols. 11 – 12 and fig. 1.

9. Concerning claim 6, Pall (557) has taught all the limitations of claim 5 above, and Pall further discloses the first filament zone is adjacent to the core (perforated mandrel 51), as in fig. 7. Furthermore, since the inserted core (24) would be inserted in place where the rotating mandrel has been (in fig. 1), the first filament zone would then be also adjacent to the core (24), as in col.

12.

10. With respect to claim 9, Pall (557) has taught all the limitations of claim 1 above, and Pall further discloses the cartridge having a transition (entangled mass) region including filaments from the first mass (i.e. fine fibers) intertwined with filaments with the second mass (coarse fibers), as in cols. 8 – 9.

11. Regarding claim 10, Pall (557) has taught all the limitations of claim 1 above, and Pall further discloses the cartridge having a density gradient between the first filament/cylindrical mass and the second filament/cylindrical mass, as in cols. 9 – 12.

12. With regards to claim 11, Pall (557) discloses a non-woven filter cartridge comprising:

- a cylindrical core member (inserted internal support or core 24 or a perforated core/mandrel 51, as in col. 12, lines 12 – 14 & lines 60 – 68 and col. 13, and fig. 7);
- a first cylindrical mass (i.e. first set of filaments or fine fibers laid down first, see col. 7, lines 44 – 46) of essentially continuous, intertwined, and thermally bonded polymer filaments adjacent to the core member (24), wherein the polymer filaments of the first mass having diameters of below 10  $\mu$  (10 microns) and preferably below 5  $\mu$  (5 microns) down to 0.1  $\mu$  (1 micron) or less, as in col. 7, lines 39 – 41,
- a portion of the first mass of polymer filaments (those coming out of the orifices at end 7) forming a *calendered* layer (defined as a layer of higher density of fine fibers/filaments) positioned adjacent the core member (in the instance it is formed directly onto a perforated mandrel/core 51, as in fig. 7 and cols. 11 - 12), and
- a second cylindrical mass (second set of filaments of different diameter or coarse fibers laid down on the exterior portion of the formed cylinder of fine fibers, see col. 7, lines 44 – 50) of essentially continuous, intertwined, and thermally bonded polymer filaments adjacent to the first mass of polymer filaments, the polymer filaments of the second mass having diameters greater than about 1.5 microns, in particular having diameters of 10  $\mu$  (10 microns) to 50 microns or 100  $\mu$  (100 microns) or higher, as in col. 7, lines 37 – 39.

See also cols. 3 - 13 of the specification.

13. Pall (557) has disclosed all the structural limitations (see above) of the invention claimed as claimed in claim 11 (i.e. non-woven filter cartridge) except for the properties/functions of the non-woven filter cartridge of *having an efficiency in removing 1 micron particles being greater than or equal to 99.9% and a pressure drop across the cartridge being less than 3 pounds per square inch for every gallon per minute of flow through a 10 inch long section of the cartridge (as in claim 11)*. The examiner cannot determine whether or not the reference inherently possesses the properties which anticipates or renders obvious these properties or functions of the claimed invention, and has basis for shifting the burden of proof to applicants as in In re Fitzgerald, 619 F. 2d 67, 205 USPQ 594 (CCPA 1980). See M.P.E.P. §§ 2112 – 2112.02.

14. Concerning claim 12, Pall (557) has taught all the limitations of claim 11 above, and Pall further discloses the filaments of the first mass (i.e. those of the fine fibers) having diameters below  $5 \mu$  (5 microns) down to  $0.1 \mu$  (0.1 micron) or less, which include at least some of the values in the claimed range of between about 0.5 microns and about 1 micron, as in col. 7, lines 39 - 41.

15. Regarding claim 13, Pall (557) has taught all the limitations of claim 11 above, and Pall further discloses the filaments of the second mass (those of coarse fibers) having diameters (*coarse fibers having diameters of 10 microns*) which are included in the claimed range of about 4 microns to about 10 microns, as in col. 7, line 38.

16. With respect to claim 14, Pall (557) has taught all the limitations of claim 11 above, and Pall further discloses the filaments of the second mass (coarse fibers) have diameters larger than the diameters of the filaments of the first mass (fine fibers), as in col. 7.

17. Claim 7 – 8 and 15 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pall (557).

18. With regards to claim 7 and 15, Pall (557) has disclosed the limitations of claims 6 and 11, respectively above, and although Pall fails to disclose the calendered layer having a thickness of about 5 mils, it is considered obvious to one of ordinary skill in the art to modify the thickness of the calendered layer according to the user's desire to achieve a particular effect or result, to such a value of about 5 mils, which is sufficient enough to hold the formed filter cartridge without collapsing prior to insertion of a core (24). In other words, the value of about 5 mils for the calendered layer is considered the optimum value of a result effective variable. The thickness of the calendered/compressed area of fibers would depend upon the desired results by the user, which could be whatever is sufficient to overcome any pressure drops and ensure durability and non-collapse of the fine fibers closest to the core during formation of the cartridge, as it is slid off the rotating mandrel prior to insertion of a core/internal support, which in this instance could be a value of about 5 mils. See case law, In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) which has stated:

"The discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art, and thus a *prima facie* case of obviousness is established."

19. Concerning claims 8 and 16, Pall (557) has disclosed the limitations of claims 7 and 15, respectively above, and although Pall does not disclose the second filament zone (fine fibers having lower density than those in the calendered layer [i.e. higher density layer of fine fibers adjacent the core]) and the second cylindrical mass being substantially thicker than about 5 mils, it is considered obvious to one of ordinary skill in the art that since most of the filtration (i.e. trapping of unwanted particulates or contaminants) would be performed at those areas by the mass of filaments forming the second filament zone and the second cylindrical mass that it would be obvious to form them to have a thickness substantially greater than 5 mils, in order to provide the sufficient density and surface area (space) to entrap and hold the unwanted particulates or contaminants.

#### *Response to Arguments*

20. Applicant's arguments, see Remarks, pages 5 - 6, filed 6-26-03, with respect to the obviousness rejections of claims 1 – 16 based on the prior art, Till et al. (735) and Barboza et al. (011), have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made in view of Pall (US 3,933,557).

21. This action is non-final.

***Conclusion***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. GB 1,459,010 (Pall Corporation) and JP 4-244206 (Cook et al.) and US 3,801,400 (Vogt et al.).

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (703) 305-1039. The examiner can normally be reached on Mondays to Fridays from 8:30 A.M. to 4:30 P.M..

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

25. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
M.S.O.

  
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